2005 COMMITTEE DRAFT ENERGY REPORT

FRIDAY, OCTOBER 7, 2005
1:00 p.m.
Natural Gas
Draft Energy Report - Chapter 7

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1

Changes in the Reference Case LNG Facilities

LNG facilities can expand beyond 2010, based on economic viability between natural gas available from domestic sources and from expanded LNG facilities.

Preliminary Case
Permitted LNG facilities were added in the case, but it was assumed that the facilities will not expand after 2010.

Final Reference Case
LNG supplies will compete with the market that it is serving. Depending on available supply and price at each of these receiving hubs, LNG facilities will expand if it is economically feasible to do so.

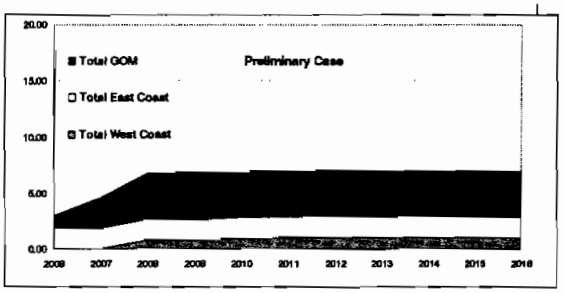
2

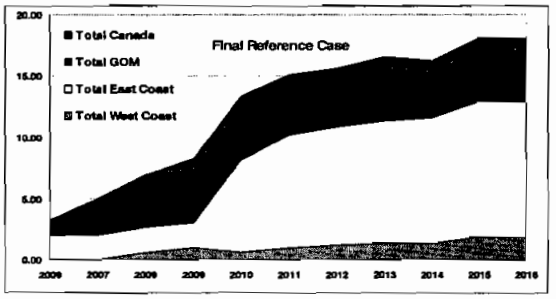
Changes in the Reference Case
LNG Facilities

- Added an LNG terminal on Eastern Canadian coast assuming that the permitted facility with a capacity of 1 bcfd will be constructed and will be in operation in 2009
  - Receive LNG from same sources as other Eastern Seaboard facilities
  - Able to expand beyond 2010 on economic basis

3

LNG Flows to North America (Bcf per day)





Preliminary Case

- LNG Facility expansion constrained beyond 2010
- No LNG facility in East Canada
- Altamira not included in totals

Final Reference Case

- LNG Facility can expand beyond 2010 if economically viable
- Added an LNG facility in East Canada
- Altamira not included in totals

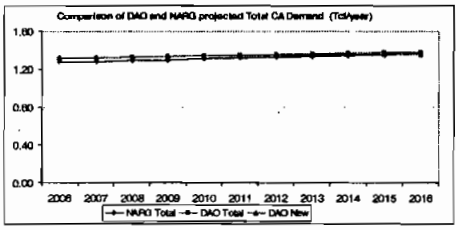
4

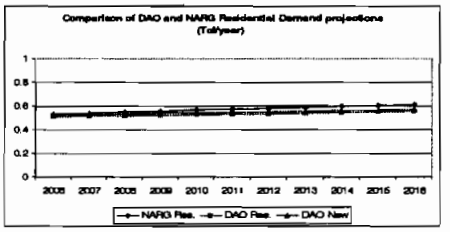
Changes in the Reference Case California Demand Projections

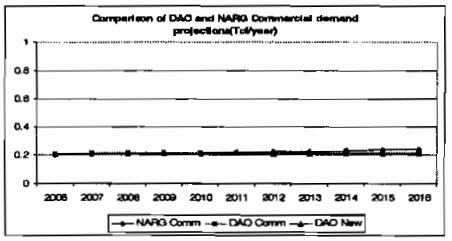
- Natural gas demand projections in California have been modified to be consistent with forecasts from the Demand Analysis Office (DAO)
  - Reference case demand elasticities are now calibrated using the same historical data as DAO
  - Demand for natural gas in the state is now observed to be very close to DAO estimates

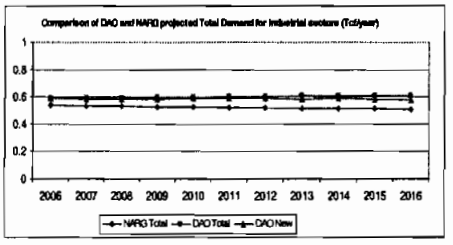
5

Comparison of DAO and NARG Model Demand projections for CA









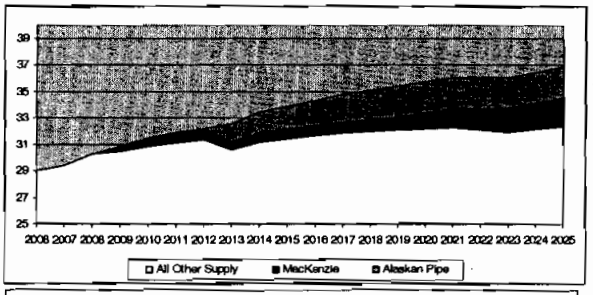
6

Changes in the Reference Case
Arctic Gas Availability

- Availability of Arctic gas to Canada and US markets was delayed by assuming that MacKenzie and the Alaskan pipelines will be delayed beyond the dates anticipated in the preliminary case
  - Delays in the permitting process and construction times necessary for the MacKenzie and Alaskan pipelines would delay the start times for each pipe
- Assumptions in the Final Reference Case:
  - MacKenzie pipeline comes into operation in 2013, instead of 2010
  - Alaskan pipeline comes into operation by 2016 instead of 2013

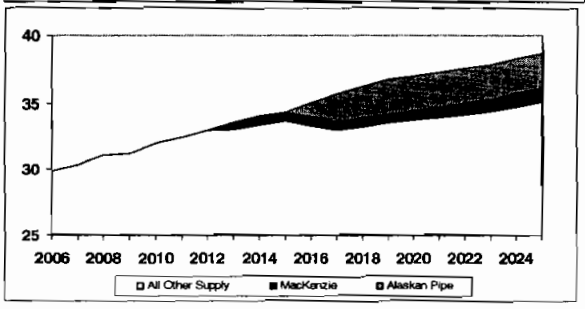
7

Arctic Gas Availability



Preliminary Case

- MacKenzie pipeline starts operation in 2009
- Alaskan pipeline starts operation in 2013



Final Reference Case

- MacKenzie pipeline starts operation in 2013
- Alaskan pipeline starts operation in 2016
- Increased LNG results in lower prices, resulting in increased overall demand in all regions

8

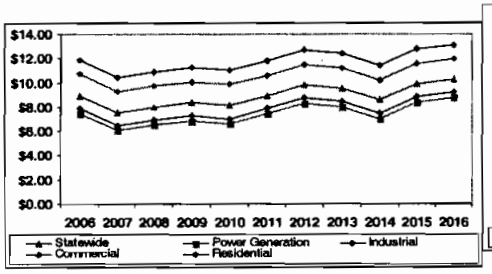
Changes in the Reference Case
Other Assumptions

- Reviewed the following information in model input
  - Mexican demand projections from other sources
  - Landed LNG costs
  - California local production potential
  - Gas demand for Canadian oil sands operations

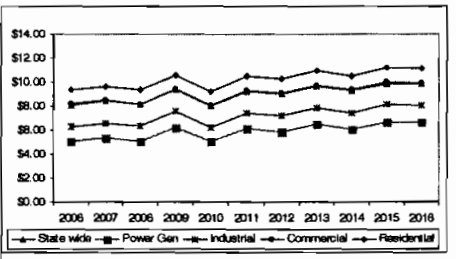
9

Natural Gas prices by Sector in California (2004$/mcf)

Preliminary Case

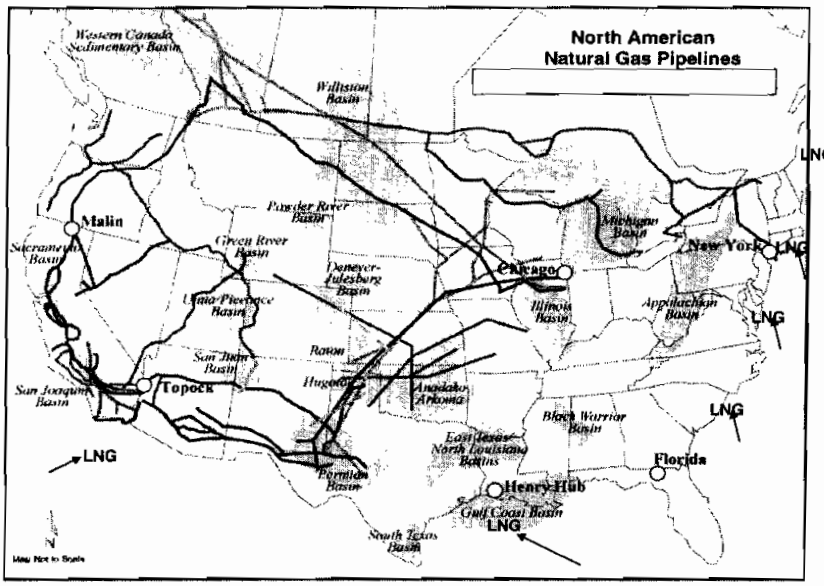


Final Reference Case



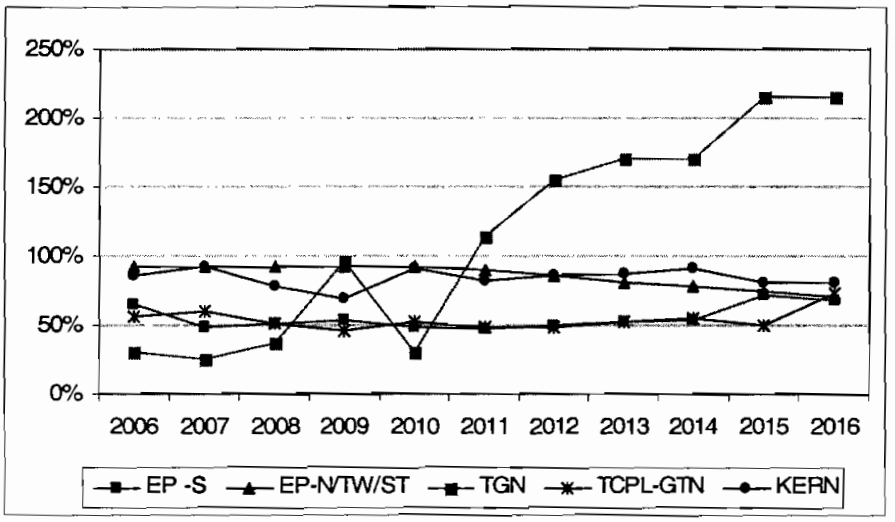
10

Interstate Pipelines Serving Western States



11

Interstate Pipeline Capacity Factors



12

Sensitivity on High Efficiency Achievement

- Conduct a sensitivity on assuming higher efficiency standards and achievements in all sectors
- Only California markets are assumed to undergo changes in this sensitivity
  - New Building and appliance standards impact the residential and Commercial sectors
  - Improvements in industrial units provide significant reductions in gas consumption
  - CHP, high efficiency technologies replace older less efficient units in the power generation sector

13

Natural Gas Savings Estimates

Reduction in Residential, Commercial and Industrial Demand:

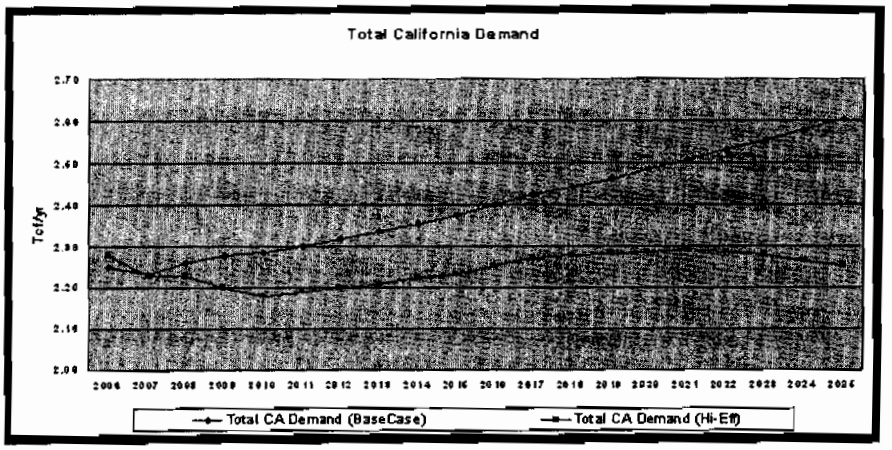
Year	2007	2008	2009	2010	2011	2012	2013	2014	2015
% Reduction in Demand	2.00	4.00	6.00	8.00	7.00	6.00	5.00	4.00	3.00

Reduction in Gas Demand in the Power Generation Sector:

r	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
on in nd	0.0%	0.83%	1.67%	2.50%	3.33%	4.17%	5.00%	5.83%	6.67%	7.50%

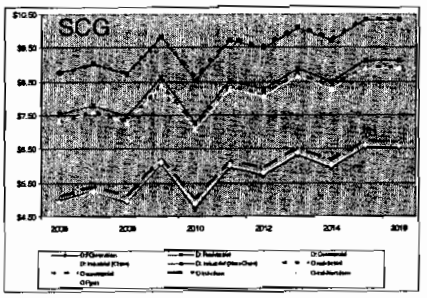
14

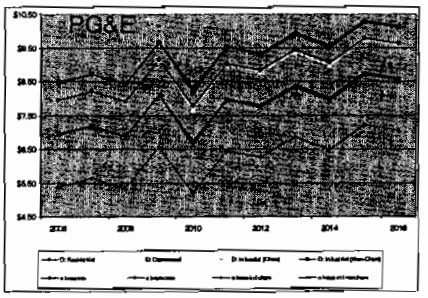
Total reduction in Demand for Natural Gas in California

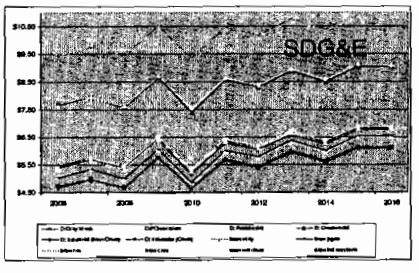


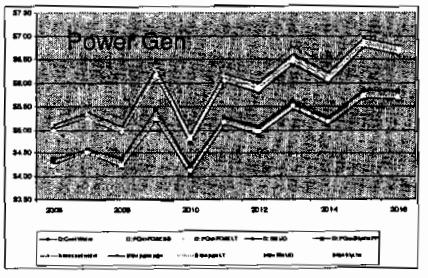
15

Impact of High Efficiency in California





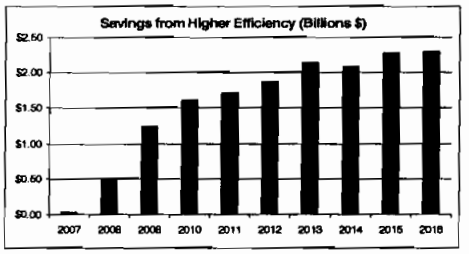




16

Savings from High Efficiency sensitivity

- Savings denote the difference in total expenses on natural gas purchase between the two cases
- Sensitivity is based on very optimistic assumptions on reductions from all sectors



17